

1. An isolated polynucleotide encoding an *alpha*-farnesene synthase.
- 5 2. A polynucleotide as claimed in claim 1 wherein the polynucleotide encodes a polypeptide comprising at least one repeat of DDXXD and LNNDLGTSAAE, wherein X is any amino acid.
- 10 3. An isolated polynucleotide as claimed in claim 1 having the sequence of SEQ ID NO:1 or a fragment or variant thereof wherein the fragment or variant encodes a polypeptide with *alpha*-farnesene synthase activity.
- 15 4. An isolated polynucleotide as claimed in claim 3 wherein the sequence has at least 70% identity to the nucleotide sequence of SEQ ID NO:1.
5. An isolated polynucleotide as claimed in claim 3 wherein the sequence has at least 90% identity to the nucleotide sequence of SEQ ID NO:1.
- 20 6. An isolated polynucleotide as claimed in claim 3 wherein the sequence has at least 95% identity to the nucleotide sequence of SEQ ID NO:1.
7. An isolated polynucleotide as claimed in claim 3 wherein the nucleotide sequence is that of SEQ ID NO:1.
- 25 8. An isolated polynucleotide encoding the polypeptide of SEQ ID NO:2 or encoding a variant or a fragment of that sequence which has *alpha*-farnesene synthase activity.
9. An isolated polynucleotide as claimed in claim 8 wherein the polypeptide has at least 70% identity with the amino acid sequence of SEQ ID NO:2.
- 30 10. An isolated polynucleotide as claimed in claim 8 wherein the polypeptide has at least 90% identity with the amino acid sequence of SEQ ID NO:2.